



CAPACITIVE SENSORS FOR VEHICULAR ENVIRONMENTS

ABSTRACT OF THE DISCLOSURE

Capacitive sensors used to detect force upon a transparency product for detecting and
5 discriminating crash characteristics of a vehicle, as well as capacitive sensors used in conjunction
with a conductive panel functioning as an airbag cover and ground plane for the capacitive sensors.
The capacitive sensors are made up of electrodes, of which one may be a conductive coating. The
capacitive sensors can be arranged upon a substrate and can include a reference sensor. Long term
effects of temperature upon sensor output are compensated for with an algorithm comparing
10 constant desired sensor output to low frequency drift due to temperature effects. Moisture upon a
transparency product is distinguished from a nearby object due to the capacitance sensed. A sleep
detection algorithm detects when a vehicle operator is drowsy. A capacitive sensor array having a
nested circle sensor and L-shaped sensors, along with a dummy sensor is used in a sunroof-
equipped vehicle for sensing occupant head position.

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